

Forest Insect Conditions on the
Ashley National Forest
• 1968

This report is designed to provide information on the current and future status of the important forest insect pests on the Ashley National Forest. It was prepared from information collected during the annual aerial survey, from periodic on-the-ground examinations, and from evaluations prepared in years previous to 1968.

The two primary insect problems on the Forest in 1968 were the mountain pine beetle, Dendroctonus ponderosae Hopk., and the spruce budworm, Choristoneura occidentalis Freeman. The mountain pine beetle is causing the most concern at present. Mortality of lodgepole and ponderosa pine has been increasing on the Manila Ranger District around the Flaming Gorge Recreational Area since 1966, and the outlook for 1969 is not favorable. Another infestation is in ponderosa pine in Uinta Canyon on the Roosevelt Ranger District. However, control efforts have reduced the beetle population in that area. Another important insect pest is the spruce budworm. This is the first reported activity of this insect on the Ashley National Forest, and little damage to Douglas-fir and true fir stands has resulted.

A more specific and detailed discussion about each of these insect problems will follow.

Mountain Pine Beetle

There are three main infestation centers on the Forest today. Two of these infestations are on the Manila Ranger District; one is located in the Hope Creek area, and another is centered in the Cart Creek area. There is widely scattered mortality between both of these infestations. A third infestation is located in Uinta Canyon on the Roosevelt Ranger District. Refer to the aerial survey map sent to you at an earlier date for a more detailed account of the location of these infestations.

Manila Ranger District. According to 1968 aerial survey data, approximately 1,600 red-topped lodgepole and ponderosa pine were observed on the District. Approximately 600 dead trees were observed over the same area in 1967, and around 200 died in 1966. It is apparent from these figures that the trend has been increasing at about the same pace since 1966.

Several methods are employed by Regional entomologists in evaluating the future trend of mountain pine beetle populations. These evaluations have proven to be extremely difficult to formulate, and the following discussion will clarify why this is true.

The annual aerial survey is one of the important tools used in determining mountain pine beetle population trends. Areas of tree mortality are easily

observed from the air, and the information is transferred to a map. The map then serves as a permanent record of infestations, and an increase or decrease in an infestation can be observed by comparing present and past survey maps of the area in question. It should be emphasized, however, that the trend as indicated on the map is one year behind the actual situation on the ground. The beetles fly and attack green trees in July and August. These trees do not fade until the following summer; therefore, on-the-ground examinations are necessary to detect these newly attacked trees.

The data collected during ground examinations are used for predicting population trends for the following year. In the past, predictions were based solely on fall brood counts. This technique, however, did not prove satisfactory. We now place more emphasis on attack ratios and stand characteristics. Brood samples are taken, but more attention is directed toward brood characteristics than brood numbers. Attack ratios are obtained by counting the newly attacked trees and comparing this count with that of recently killed trees or snags in the same area. Often only a few areas throughout an infestation can be ground checked. The sample is, therefore, small and an erroneous conclusion about the future trend could result due to variability within the infestation. We try to reduce the probability of error by selecting areas that appear to be most representative of the trend. Last year (1967) was the first year that we conducted our evaluations in this manner, and favorable results were obtained.

Stand characteristics also play an important role in predicting future population trends. Mountain pine beetle populations become epidemic only when stand characteristics are favorable for a buildup. For this reason, particular attention is paid to the number of large diameter (10-inches d.b.h. and over) green trees in a stand. The greater the percentage of large diameter trees, the greater is the possibility of a buildup.

On-the-ground evaluations were conducted during the second week of August by Forestry Aids Evan Nebeker and Jan Laarman, and a followup evaluation was conducted during mid-October by Douglas Parker, Entomologist, and Ezra Hookano, Forestry Aid. A resume of the findings of both evaluations with regard to attack ratios follows:

Area	Tree Species	No. of Trees Observed		Attack Ratio		Combined Attack Ratio	
		1968	1967	1968	1967	1968	1967
Sheep Creek	Lpp	13	24	1	1.8	.37	1.
	Pp	0	11	0	11		
Ute Lookout	Lpp	37	23	1.6	1	1.6	1
	Pp	-	-	-	-		
Summit G. S. #1	Lpp	9	10	1	1.1	1.1	1
	Pp	9	6	1.5	1		
Summit G. S. #2	Lpp	7	24	1	3.4	.29	1
	Pp	-	-	-	-		

Area	Tree Species	No. of Trees Observed		Attack Ratio		Combined Attack Ratio	
		1968	1967	1968	1967	1968	1967
Deep Creek	Lpp	12	26	1	2.2	.57	1
	Pp	3	0	3	0		
* Greens Lake	Lpp	-	-	-	-	0	1
	Pp	0	1	0	1		
* Cart. Creek #1	Lpp	6	1	6	1	12	1
	Pp	6	0	6	0		
* Cart Creek #2	Lpp	1	0	1	0	1	0
	Pp	-	-	-	-		
* Cart Creek #3	Lpp	-	-	-	-	1.7	1
	Pp	20	12	1.7	1		
* Greendale Campground	Lpp	-	-	-	-	1	1
	Pp	7	7	1	1		
* Bootleg Campground	Lpp	-	-	-	-	-	-
	Pp	-	-	-	-		
* Pipe Creek	Lpp	-	-	-	-	2	1
	Pp	4	2	2	1		

It is difficult to form any conclusion about the overall trend by looking at these figures. About half of the figures show an increasing trend while the other half indicate a decreasing trend. Tree-killing will apparently remain about the same or decrease in lodgepole and ponderosa pine in the Summit Guard Station area, Deep Creek, and Sheep Creek. Mortality will increase in the Ute Lookout, Cart Creek, and Pipe Creek areas. No activity will be in evidence around Bootleg Campground, and little will occur in the Greens Lake area. Also note that the number of trees used to obtain the various ratios are small. The reason for this is that clumps of attacked trees are widely scattered. This was observed even in the hardest hit areas.

Observations throughout the infestation on the Manila Ranger District indicate that there is a large percentage of favorable brood trees. Only a small percentage of the pine stands have been depleted to date. Therefore, stand conditions are favorable for a buildup.

Brood conditions were found to be normal in all areas. The beetle flight was nearly over by the second week in August. By mid-October, the adults had extended their egg galleries approximately 3 to 12 inches. Eggs and small larvae were the stages present.

An overall increase in tree-killing should occur in 1969. Locally there will be variations, but the general trend will increase. There is no evidence at present to suggest that a major blowup will occur in 1969.

From an economical and biological standpoint, control of individually infested trees is not recommended at this time. Infested trees are scattered over such an extensive area of the District that a control project would

* Sample location falls within the Flaming Gorge National Recreational Area.

be very expensive. Therefore, from a cost-benefit relationship, control would not be practical. Biologically speaking, mountain pine beetle populations and subsequent tree-killing have not yet reached a point where the pine stands have been seriously depleted. Conditions are potentially hazardous, but there is no evidence to suggest that a major buildup will occur. Some protection of trees in campgrounds and other high use areas can be obtained by using a preventive spray. It should be emphasized, however, that trees must be sprayed before the beetle flight begins. The probability of saving a tree after it has already been attacked is small.

Roosevelt Ranger District. Four hundred and fifty mountain pine beetle infested ponderosa pine were cut and burned in Uinta Canyon during June 1968. A ground check conducted by Regional entomologists on October 8 showed that this control effectively reduced the beetle population in that area. Eleven new hits were observed during this evaluation, but no old attacks were observed. Forester Ronald Sanden conducted a more intensive survey at an earlier date and found that, instead of 11 new attacks, there were approximately 65 infested trees in the area. Therefore, both surveys indicate that conditions in 1969 will not be as destructive as in 1968.

Tree-killing on this District during 1969 will not approach the 1968 level. Control efforts by District personnel are responsible for this decline. From an entomological standpoint, similar control efforts in 1969 would be beneficial in further reducing the beetle population in the Uinta Canyon area.

Spruce Budworm

Approximately 360 acres of defoliated Douglas-fir were mapped during the aerial survey this summer. Two areas of defoliation were observed in the Dry Fork of Ashley Creek on the Vernal District. There are approximately 200 acres of defoliation in the South Fork area, and about 160 acres of defoliation in Brownie Canyon on the East Fork.

A ground check revealed that the defoliation was light to moderate at both locations, and the trees were not damaged to any degree. Douglas-fir, spruce, and pine are intermixed throughout the areas in question; consequently, there is a small probability that the situation will become a major problem.

The best policy at this time is to wait and see what will happen next year. Damage to Douglas-fir occurs only after repeated defoliation over a three to four year period leaving adequate time to observe what the population trend will be without worrying about stand damage.

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